DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

DASG-HSZ (40)

14 JAN 1999

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Policy Guidance for Fluid Replacement During Training

1. References:

a. Field Manual 21-10, November 1988, Hygiene and Sanitation.

b. Technical Bulletin 507, July 1980, Prevention, Treatment and Control of Heat Injury.

c. Memorandum, HQDA (DASG-HSZ), 29 April 1998, subject as above.

2. References 1a and 1b, above, provide the Army's policy concerning water replacement requirements during training.

3. In 1998, the U.S. Army Research Institute for Environmental Medicine (USARIEM) provided revised recommendations (reference 1c, above). Comments on that document and some additional work performed at USARIEM have resulted in the enclosed table.

4. Request that all pertinent military documents and training materials be updated to include the new policy in the enclosure.

5. Our point of contact is COL Jerome J. Karwacki, Directorate of Health Policy and Services, DSN 471-6612 or Commercial (210) 221-6612.

FOR THE SURGEON GENERAL:

Encl
as

KEVIN C. KILEY
Brigadier General, MC
Assistant Surgeon General
for Force Projection

DASG-HSZ
SUBJECT: Policy Guidance for Fluid Replacement During Training

DISTRIBUTION:
HQDA(DAMO-TRZ), 400 ARMY PENTAGON, WASHINGTON DC 20310-0400

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Fluid Replacement Guidelines for Warm Weather Training

(Applies to average acclimated soldier wearing BDU, Hot Weather)

Heat Category	WBGT Index, °F	Easy Work		Moderate Work		Hard Work	
		Work /Rest	Water Intake, Qt/hr	Work /Rest	Water Intake, Qt/hr	Work /Rest	Water Intake, Qt/hr
1	78-81.9	NL	½	NL	¾	40/20 min	¾
2 (Green)	82-84.9	NL	½	50/10 min	¾	30/30 min	1
3 (Yellow)	85-87.9	NL	¾	40/20 min	¾	30/30 min	1
4 (Red)	88-89.9	NL	¾	30/30 min	¾	20/40 min	1
5 (Black)	> 90	50/10 min	1	20/40 min	1	10/50 min	1

- The work:rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Individual water needs will vary ± ¼ qt/hour.
- NL= no limit to work time per hour.
- Rest means minimal physical activity (sitting or standing), accomplished in shade if possible.
- **CAUTION: Hourly fluid intake should not exceed 1½ quarts.**
- **Daily fluid intake should not exceed 12 quarts.**
- Wearing body armor add **5°F** to WBGT Index
- Wearing MOPP overgarment add **10°F** to WBGT Index.

Easy Work	Moderate Work	Hard Work
• Walking Hard Surface at 2.5 mph, ≤ 30 lb Load • Weapon Maintenance • Manual of Arms • Marksmanship Training • Drill and Ceremony	• Walking Hard Surface at 3.5 mph, < 40 lb Load • Walking Loose Sand at 2.5 mph, no Load • Calisthenics • Patrolling • Individual Movement Techniques. i.e. low crawl, high crawl • Defensive Position Construction • Field Assaults	• Walking Hard Surface at 3.5 mph, ≥ 40 lb Load • Walking Loose Sand at 2.5 mph with Load

USARIEM 4 December 98

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH VA 220415258

REPLY TO
ATTENTION OF

DASG-PPM-NC (40)

4 June 2001

MEMORANDUM FOR

Commanders, MEDCOM Major Subordinate Commands
Commander, 18th Medical Command

SUBJECT: Prevention of Heat Injury

1. The 2001 hot weather season is upon us. While unit commanders are responsible for protecting soldiers from heat injury, we in the AMEDD must assist in defining risks and developing/updating unit heat injury prevention programs. I ask that you review and update your programs for the prevention of heat injuries. The enclosed Information Paper will assist your medical staff in fulfilling their responsibilities.

2. Several soldiers who suffered from heat stroke lost their lives last year. Their deaths were completely preventable. During 2000, a total of 1,040 heat injuries were reported. While the number of reported heat related illnesses has decreased over the past 3 years, we know that reporting is incomplete, particularly when mild cases are treated at aid stations.

3. During 2001 we will attempt to focus on analysis of conditions surrounding cases of heat injury. Lessons learned will assist commanders in reducing preventable heat injuries. It is vital that all units provide accurate, complete, and timely (within one week) reports of all heat injuries to the appropriate, local Preventive Medicine Office.

4. COL Gardner, Chief of Preventive Medicine, Fort Bragg (910-396-1280/5022, DSN 236, <john.gardner@amedd.army.mil>), has developed a model post-level heat injury control program. The associated documents were distributed by LTC Erickson via email on 28 May 2001 and may be adapted for local use.

5. POC's are COL Withers, <ben.withers@amedd.army.mil>, 703-681-3160, (DSN 761) at the Proponency Office of Preventive Medicine Office and LTC Lovell, <mark.lovell@amedd.army.mil>, 410-436-2464, (DSN 584) at the U.S. Army Center for Health Promotion and Preventive Medicine.

FOR THE SURGEON GENERAL:

Encl

LESTER MARTINEZ-LOPEZ
Brigadier General, MC
Functional Proponent
for Preventive Medicine

DASG-PPM-NC
SUBJECT: Prevention of Heat Injury

CF (w/encl):
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ATEC, Park Center IV, 4501 Ford Avenue, Alexandria, VA 22301-1458
ARCENT (AFRD-MD), 1881 Hardee Aveune, Fort McPherson, GA 30330
USARSO (SOMD), Bldg. 1314, Ft Buchanan, PR 00934-3400
USASOC (AOMD), Fort Bragg NC 28307-5200
USARC, (AFRC-MD), 1401 Deshler St, S.W., Fort McPherson, GA 30330-2000
NGB, (NGB-ARS), 111 South George Mason Dr, Arlington, VA 22204-1382

DASG-PPM-NCR

1 May 01

INFORMATION PAPER

SUBJECT: Prevention of Heat Injuries

1. References:

a. FM 21-10, Field Hygiene and Sanitation, November 1988

b. AR 40-5, Preventive Medicine, 15 October 1990

c. TB MED 507, Occupational and Environmental Health, July 1980, Prevention, Treatment and Control of Heat Injury.

d. USARIEM Technical Note 91-3, June 1991, Heat Illness: A Handbook for Medical Officers.

e. Memorandum, HQDA(DASH-HSZ), 7 December 1998, Policy on Carbohydrate-Electrolyte Beverages in Dining Facilities.

f. Memorandum, HQDA (DASG-HSZ), 14 January 1999, Policy Guidance for Fluid Replacement During Training.

g. Memorandum, USARIEM, MCMR-UE-TMD, 7 April 1999, Field Implementation of Carbohydrate-electrolyte Beverages.

h. GTA 5-8-12, Individual Safety Card, 25 February 1999.

i. Army Medical Surveillance Activity website <http://amsa.army.mil>.

j. USA Center for Health Promotion and Preventive Medicine website <http://chppm-www.apgea.army.mil>.

2. Facts.

a. Heat injuries are preventable. Commanders and supervisory personnel are responsible for the prevention of heat injury.

b. Military leaders need to recognize climatic as well as individual physical stressors that increase the risk of heat injuries.

c. Extremely high temperatures occur on a regular basis during the summer months, especially in the southern United States. Soldiers, especially Reserve Component personnel from colder climates, must undergo heat acclimatization.

d. U.S. Army fluid replacement guidelines for hot weather training must be followed.

3. Lessons learned from reported cases during CY 2000 heat injury season:

a. Staff should do periodic mental status checks during high heat/high intensity activities even during hours of darkness.

b. Medical care at events is sometimes inadequate. Plans should be in place for mass casualties and evacuation procedures. Close supervision by medical officers, responsible commanders, and experienced para-medical personnel is essential in achieving maximum work/training schedules with minimum hazard. Medics on site must be allowed to make decisions on treating soldiers suffering heat injury. Every soldier should be medically evaluated before being released from the event.

c. A soldier taking a chronic medication might not think of himself as "sick", yet that medication might predispose him to a heat injury. For example, antihistamines and other allergy medications can cause dehydration thus requiring additional fluid intake.

d. It has been reported that some installations filed no heat injury reports fearing reprisals to commanders. The purpose of this reporting is to reduce heat injuries and deaths and is not intended to be punitive. Accurate reporting is critical to this effort.

4. Recommendations:

a. Use the Wet Blub Globe Temperature (WBGT)to determine and establish the level of physical activity.

b. Consider cumulative effects of heat exposure.

c. Eliminate heavy clothing that retains heat.

d. Eliminate unnecessarily strenuous exercise during extreme conditions.

e. Provide shade, water, and rest periods appropriate to the heat category.

f. Have medical personnel on-site during high intensity/high heat events.

g. Ensure adequate hydration the night before strenuous training events.

h. Inform soldiers that alcohol causes loss of body water and should not be consumed the night before strenuous exercise.

i. Road marches - The prior day should have minimal physical activity and heat stress exposure. Ensure adequate hydration during road marches. Leaders should ensure that soldiers actually drink fluids.

COL Withers/DSN 761-3160